

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-038737

(43)Date of publication of application : 07.02.1995

(51)Int.Cl.

H04N 1/387

G03G 21/04

H04N 1/40

(21)Application number : 05-182789

(71)Applicant : RICOH CO LTD

(22)Date of filing : 23.07.1993

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## (54) COPYING MACHINE

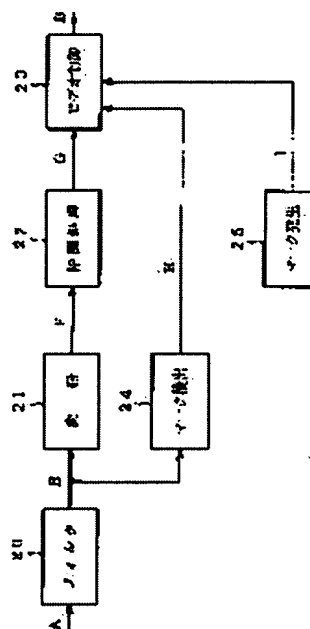
## (57)Abstract:

**PURPOSE:** To easily prepare an original added with a specified pattern by providing a means for reproducing an image added with a specified mark in an original image and a control means for making copying operation different from normal operation when the specified mark is detected.

**CONSTITUTION:** An input image A is corrected by a filter part 20, magnified by a magnification part 21 and subjected to gradation processing by a gradation processing part 22 to obtain image data G. A video control part 23 controls the image data G transmitted from the gradation processing part 22 by input H and J and outputs them to a write part as image data B.

Namely, when a copying inhibit mark, for example, is detected by a mark detection part 24 and the mark detect signal H is inputted, the video control part 23 cuts the image data G and controls a regenerative image so that it can be white. When the image signal J for any specified image is inputted from a mark generation part

25 in a mark generation mode, the image signal J and the image data G are synthesized and outputted as the image data B.



## LEGAL STATUS

[Date of request for examination] 09.03.2000

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3397843

[Date of registration] 14.02.2003

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's  
decision of rejection]

[Date of extinction of right]

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**Bibliography**

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(19) [Publication country] Japan Patent Office (JP)

(12) [Kind of official gazette] Open patent official report (A)

(11) [Publication No.] JP,7-38737,A

(43) [Date of Publication] February 7, Heisei 7 (1995)

(54) [Title of the Invention] Copying machine

(51) [International Patent Classification (6th Edition)]

H04N 1/387 4226-5C

G03G 21/04

H04N 1/40

**[FI]**

G03G 21/00 554 6605-2H

H04N 1/40 Z 4226-5C

[Request for Examination] Un-asking.

[The number of claims] 4

[Mode of Application] OL

[Number of Pages] 14

(21) [Application number] Japanese Patent Application No. 5-182789

(22) [Filing date] July 23, Heisei 5 (1993)

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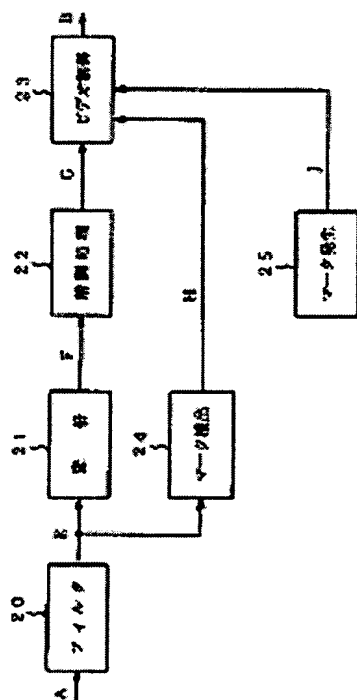
## Epitome

**(57) [Abstract]**

[Objects of the Invention] This invention aims at enabling it to draw up simply the manuscript which added the specific pattern.

[Elements of the Invention] This invention has the specific mark generating means 25 for reproducing the image which added the specific mark to the manuscript image, a mark existence detection means 24 detect the existence of the specific mark in the read manuscript image, and the control means 23 that changes copy actuation with usual when this mark existence detection means 24 detects the specific mark in a manuscript image.

[Translation done.]



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CLAIMS

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## [Claim(s)]

[Claim 1] The copying machine which carries out [ having had the specific mark generating means for reproducing the image which added the specific mark to the manuscript image, a mark existence detection means detect the existence of the specific mark in the read manuscript image, and the control means that change copy actuation with usual when this mark existence detection means detects the specific mark in a manuscript image, and ] as the description.

[Claim 2] The copying machine characterized by to have the specific mark generating means for reproducing the image which added the specific mark to the manuscript image, a mark existence detection means detect the existence of the specific mark in the read manuscript image, and the video control means that reads when this mark existence detection means detects the specific mark in a manuscript image, and makes image data an invalid.

[Claim 3] The copying machine characterized by having set to the copying machine according to claim 1 or 2, and having a setting means to make the mark generating function of said mark generating means turn on / turn off.

[Claim 4] The copying machine characterized by having ON / an off means to make the function of a control means to change copy actuation with usual in a copying machine according to claim 1 when said mark existence detection means detects the specific mark in a manuscript image turn on / turn off.

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DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

## [0001]

[Industrial Application] This invention relates to the copying machine which changes copy actuation with usual, when the image which added the specific mark to the manuscript image is reproduced or the specific mark in a manuscript image is detected.

## [0002]

[Description of the Prior Art] Generally, a copying machine reads a manuscript image by the read station, and reproduces the reading image data in the paper for a copy by the write-in section in the almost same location as a read station, or a completely different location. Moreover, when a manuscript image is read and a specific pattern is detected from the reading image data, the copying machine with which a manuscript judges that it is a strictly confidential manuscript, and it was made to suspend copy actuation is indicated by JP,54-32322,A.

## [0003]

[Problem(s) to be Solved by the Invention] Although copy actuation is suspended in the above-mentioned copying machine when a manuscript is a strictly confidential manuscript, it reads and a specific pattern is detected from image data, it is difficult to add a specific pattern to a

common manuscript and to consider as a secret manuscript.

[0004] This invention improves the above-mentioned fault and aims at offering the copying machine which can draw up easily the manuscript which added the specific pattern.

[0005]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention according to claim 1 has the specific mark generating means for reproducing the image which added the specific mark to the manuscript image, a mark existence detection means detect the existence of the specific mark in the read manuscript image, and the control means that change copy actuation with usual when the specific mark in a manuscript image is detected with this mark existence detection means.

[0006] Invention according to claim 2 is equipped with the specific mark generating means for reproducing the image which added the specific mark to the manuscript image, a mark existence detection means detect the existence of the specific mark in the read manuscript image, and the video control means that reads when this mark existence detection means detects the specific mark in a manuscript image, and makes image data an invalid.

[0007] Invention according to claim 3 is set to a copying machine according to claim 1 or 2, and is equipped with a setting means to make the mark generating function of said mark generating means turn on / turn off.

[0008] In a copying machine according to claim 1, invention according to claim 4 is equipped with ON / an off means to make the function of a control means to change copy actuation with usual turn on / turn off, when said mark existence detection means detects the specific mark in a manuscript image.

[0009]

[Function] In invention according to claim 1, the image which added the specific mark by the specific mark generating means to the manuscript image is reproduced, and the existence of the specific mark in the read manuscript image is detected by the mark existence detection means. A control means changes copy actuation with usual, when a mark existence detection means detects the specific mark in a manuscript image.

[0010] In invention according to claim 2, the image which added the specific mark by the specific mark generating means to the manuscript image is reproduced, and the existence of the specific mark in the read manuscript image is detected by the mark existence detection means. A video control means is read when a mark existence detection means detects the specific mark in a manuscript image, and it makes image data an invalid.

[0011] In invention according to claim 3, it sets to a copying machine according to claim 1 or 2, and the mark generating function of a mark generating means is turned on / turned off by the setting means.

[0012] In invention according to claim 4, in a copying machine according to claim 1, when a mark existence detection means detects the specific mark in a manuscript image, the function of a control means to change copy actuation with usual is turned on / turned off by ON / off means.

[0013]

[Example] Drawing 2 shows the appearance of the 1st example of this invention. On the manuscript base 11, a read field is turned down, a manuscript is set, a control unit 12 is operated by the user or various kinds of displays are performed. The manuscript on the manuscript base 11 is read by the read station inside the 1st example, and, as for the image data from this read station, various kinds of image processings are performed by the image-processing section. Based on the image data from this image-processing section, the write-in section records a playback image on the copying paper with which it was chosen of the feed equipment using the form cassettes 13 and 14 from a thing, and discharges on a tray 15 by considering this as a copy.

[0014] Although a read station is read scanning the manuscript on the manuscript base 11 in a main scanning direction x and the direction y of vertical scanning, horizontal scanning of reading is electronically performed by the CCD line sensor, and vertical scanning is performed by the relative impaction efficiency of the manuscript on the manuscript base 11, and a CCD line sensor. Moreover, both reading of a read station and the writing of the write-in section are

performed by disassembling an image into a pixel. The resolution of horizontal scanning and vertical scanning is 400DPI (DOT PER INCHI).

[0015] Drawing 3 is the block diagram showing the image data flow from manuscript reading in the 1st example to playback image recording, and the flow of the control signal of image data. A read station 16 is read with a CCD line sensor, scanning the manuscript on the manuscript base 11 in a main scanning direction x and the direction y of vertical scanning, and processes magnification of the picture signal from this CCD line sensor, A/D conversion, a shading compensation, etc. The image-processing section 17 processes filtering of image data A from a read station 16, variable power processing, gradation processing, etc.

[0016] The write-in section 18 performs image recording by using a laser beam printer, forming an electrostatic latent image by the modulation of the laser beam by image data B from the image-processing section 17, electrification of a photo conductor, and exposure by that laser beam, and performing an imprint, fixing, etc. to development and a copying paper of this electrostatic latent image. From a control unit 12, setting inputs, such as conditions, such as a gradation processing mode, record image concentration, and a rate of variable power, and output mode of a copy prohibition mark, are performed, and a control section 19 sends a control signal C to a read station 16, the image-processing section 17, and the write-in section 18 based on the input signal from the control unit 12, and controls actuation of a read station 16, the image-processing section 17, and the write-in section 18.

[0017] Especially drawing 1 is the block diagram showing the part in connection with the part by which it is characterized [ of the 1st example ] among the image-processing sections 17. Image data A and B is image data A outputted from a read station 16 as well as drawing 1, and image data B outputted from the image-processing section 17. Image data A, B, E, F, and G is the signal by which multiple-value quantization was carried out about concentration for every pixel.

[0018] MTF amendment is carried out by the filter section 20, and input image data A is set to image data E. the processing which the variable power section 21 expands image data E from the filter section 20 to a main scanning direction, or is reduced -- being logical (or electronic) -- it carries out. Variable power of the direction of vertical scanning is performed by control by the control section 19 of the rate of the relative impaction efficiency of a CCD line sensor and the manuscript on the manuscript base 11, i.e., a vertical-scanning rate, when reading the manuscript on the manuscript base 11.

[0019] Gamma conversion is carried out so that the concentration relation between a manuscript and a playback image may turn into desired relation in the gradation processing section 22, and as image data F by which variable power was carried out in the variable power section 21 becomes the image data which suits the write-in section 18 further, gradation processing is carried out and it is set to image data G. The video control section 23 controls image data G from the gradation processing section 22 by input signals H and J etc., and outputs it to the write-in section 18 as image data B.

[0020] that is, when a copy prohibition mark is detected by the mark detection section 24 and the mark detection signal H is inputted from the mark detection section 24, the video control section 23 cuts image data G, considers as image data B= 0, and it makes a playback image white (nothing is recorded) -- it is made like. Moreover, in mark generating mode, the mark picture signal J from the mark generating section 25 and image data G are compounded, and it outputs as image data B.

[0021] The mark detection section 24 judges whether image data E from the filter section 20 is analyzed, and a copy prohibition mark is in a manuscript image, or there is nothing, and when a copy prohibition mark is in a manuscript image, it outputs the mark detection signal H= 1. The mark generating section 25 is the purpose which obtains the playback image which added the image special to a manuscript image, and generates the picture signal J for the special image. Although a page number etc. is in a typical thing as an example of a special image, in the 1st example, a copy prohibition mark is also one of the special images, and the picture signal is generated in the mark generating section 25.

[0022] Drawing 4 is the block diagram showing the internal configuration of the mark detection section 24. The description generating section 26 generates the description data L of a copy

prohibition mark. This description data L is created based on the location of the copy prohibition mark on a manuscript, or the description on an array besides the description based on the configuration of the copy prohibition mark decided beforehand, concentration, etc. Furthermore, at the time of a variable power copy, image data E is data by which variable power was carried out in the direction of vertical scanning, and the description data L are created by the main scanning direction also in consideration of the property by which variable power processing is not carried out to be the so-called actual size image data.

[0023] By extracting the description corresponding to the description data L generated in the description generating section 26 based on image data E, the feature-extraction section 27 extracts the description of a copy prohibition mark from a manuscript image, and outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of a copy prohibition mark synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark, it generates the copy prohibition mark detection signal H= 1.

[0024] Drawing 5 is the block diagram showing the internal configuration of the mark generating section 25. Signal CK is the pixel clock of a main scanning direction, and the X counter 30 generates the signal XA with which Signal CK is counted and the pixel address of the main scanning direction in the paper for a copy is expressed. Signal SYNC is the Rhine synchronizing signal of a main scanning direction, and the Y counter 31 generates the signal YA with which Signal SYNC is counted and the pixel address of the direction of vertical scanning in the paper for a copy is expressed.

[0025] A pattern generator 32 is ROM (READ ONLY MEMORY), and the address is specified by Signals XA and YA and MARK and it outputs the mark pattern data P corresponding to this address. The mark pattern data P are pattern data chosen besides the copy prohibition mark stored in the pattern generator 32 from various alphabetic characters, such as a figure pattern for page numbers, a notation, and the pattern data of a mark (it is called a mark etc. below).

[0026] It is decided with the address input signal MARK to ROM32 pattern data, such as which mark in ROM32, will be chosen. The address input signal MARK is a coded 4 bits [ showing the class of pattern data in ROM32 ] signal, for example, in the case of 0001, expresses a copy prohibition mark. The mark pattern data P are a 8-bit parallel signal, and parallel/serial conversion of them is carried out in the PSC section (parallel/serial-conversion section) 33, and they serve as the serial signal MP of a pixel unit. Only the period which is going to control on which location in the paper for a copy a control section 34 records a mark etc., and is going to record it generates signal XY=1. AND circuit 35 takes AND of Signals MP and XY, and generates Signal J. This signal J is picture signals, such as a mark recorded.

[0027] Drawing 6 is the block diagram showing the important section of the video control section 23. Signals B, G, H, and J are the same as drawing 4. The video control section 23 has RS mold flip-flop 36, NAND gate 37, AND gates 38 and 39, and OR circuit 40. Signal MD is a mode signal which enables the function in which cut image data and a manuscript image is not taken out to a playback image, and the so-called copy prohibition limit function, when a copy prohibition mark is detected, and it is set up based on the input assignment from a control unit 12.

[0028] It is the pulse signal generated by the control section 19 shown in drawing 1, and generates at the time of initiation of copy actuation, and Signal RS resets a flip-flop 36 for every \*\*\*\*\* actuation. Signal JG is a signal showing the mode of whether for the mark picture signal J to be compounded with manuscript image data, and to output it, and is set to 1 at the time of the synthetic mode which compounds the mark picture signal J with manuscript image data, and outputs it. This signal JG is generated by the control section 19 shown in drawing 1.

[0029] Next, the actuation of the video control section 23 shown in drawing 6 is explained. If a manuscript is set on the manuscript base 11 and the copy initiation key of a control unit 12 is pressed, copy actuation will be started, Signal RS will occur and a flip-flop 36 will be reset. The reading scan of a manuscript advances, and if the copy prohibition mark exists on the manuscript set on the manuscript base 11 and this is detected by the mark detection section 24, the mark



detection signal H will change to 1 from 0.

[0030] If the mark detection signal H changes to 1, a flip-flop 36 will be set and the output signal of a flip-flop 36 will be set to 1. Here, if a copy prohibition control function is in effective mode, it will be set to MD=1 and the output signal MK of NAND gate 37 will be set to 0. If MK is set to 0, the output signal GB of AND gate 38 will be set to 0 (it corresponds to the white of a playback image) regardless of image data G. If a copy prohibition control function is not in effective mode, it will be set to MD=0, the output signal MK of NAND gate 37 will be set to 1, and image data G will pass AND gate 38. Moreover, when the synthetic mode which compounds the mark picture signal J with manuscript image data, and outputs it is off (i.e., when it is JG=0), the output signal JB of AND gate 39 is set to 0.

[0031] Therefore, a copy prohibition control function is in effective mode, when synthetic mode is OFF, and a copy prohibition mark is detected by the mark detection section 24, henceforth, a manuscript image is no longer recorded and a playback image turns into a white image. Moreover, when the synthetic mode which compounds the mark picture signal J with manuscript image data, and outputs it is ON (i.e., when it is JG=1), the mark picture signal J according to classes, such as a mark chosen, passes AND gate 39, and is outputted as a signal B through OR circuit 40, and the mark as which it is chosen is recorded in the paper for a copy. Moreover, the output signal MK of AND gate 40 is sent out to the control section 19 shown in drawing 1, and a control section 19 generates the beep sound for warning of a manuscript being a copy prohibition manuscript and it being unable to copy while displaying the purport which the manuscript which it is going to copy is a copy prohibition manuscript, and cannot copy to a control unit 12, if Signal MK is received.

[0032] When the copy prohibition mark does not exist on the manuscript set on the manuscript base 11, the mark detection signal H from the mark detection section 24 continues being 0, and the output signal MK of NAND gate 37 continues being 1. For this reason, image data G passes AND gate 38, and a manuscript image is recorded as a playback image. Moreover, a copy prohibition control function is not in effective mode, in being MD=0, the output signal MK of NAND gate 37 continues being 1, image data G passes AND gate 38, and a manuscript image is recorded as a playback image.

[0033] Drawing 7 shows the configuration of a copy prohibition mark. This copy prohibition mark 41 is constituted by two or more concentric circles 411-413 from which a path differs. The mark pattern data of the copy prohibition mark 41 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 41 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 41 is in a manuscript image, or there is nothing, and when the copy prohibition mark 41 is in a manuscript image, it outputs the mark detection signal H= 1.

[0034] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 41, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 41 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 41, it generates the copy prohibition mark detection signal H= 1.

[0035] Drawing 8 is the mimetic diagram in which developing two-dimensional and showing the situation of image data E at the time of reading the copy prohibition mark 41 in expansion copy mode, and although image data E is expanded in the direction y of vertical scanning, it is actual size in the main scanning direction x. Drawing 9 is the mimetic diagram in which developing two-dimensional and showing the situation of image data E at the time of reading the copy prohibition mark 41 in contraction copy mode, and image data E is actual size in the main scanning direction x, although reduced in the direction y of vertical scanning.

[0036] The mimetic diagram which developed image data E of drawing 8 and drawing 9 two-

dimensional serves as a fixed image pattern too, even if it is not concerned with expansion and contraction in both a certain locations  $l$  of a main scanning direction  $x$ , it becomes an image pattern fixed to a main scanning direction and a manuscript is aslant set on the manuscript base 11, when the copy prohibition marks 41 are concentric circles 411-413. As the 1st example shows to drawing 8 and drawing 9, since the copy prohibition mark 41 can extract the description only by the image pattern of the main scanning direction of image data E, its merit is large [ in order to extract the data of the direction pattern of vertical scanning of a copy prohibition mark from image data E in the feature-extraction section 27, there is a fault that the Rhine memory is generally needed, and a configuration becomes complicated, and cost becomes high, but ] at Men of a configuration and cost.

[0037] Drawing 10 shows the example which recorded the copy prohibition mark 41 in the paper for a copy in the 1st example, and the playback image by the manuscript image has omitted illustration. On a copying paper 42, two or more copy prohibition marks 41 are recorded discretely, and one O mark shows one copy prohibition mark 41. Much copy prohibition marks 41 are arranged on the copying paper 42 whether it sets a manuscript on the manuscript base 11 with what kind of sense or other white papers etc. tend to cover and copy some manuscripts on the manuscript base 11, or so that the copy prohibition mark 41 may surely be read by somewhere.

[0038] Thus, at the judgment section 29 of drawing 4, since much copy prohibition marks 41 are arranged on the copying paper 42, in case the existence of the copy prohibition mark 41 is judged synthetically, when the copy prohibition mark 41 is detected more than a certain fixed numbers, by judging that the copy prohibition mark 41 is, incorrect detection of the copy prohibition mark 41 is prevented, and it becomes that it is possible in raising detection precision.

[0039] Drawing 11 shows the configuration of the copy prohibition mark in the 2nd example of this invention.

[0040] This copy prohibition mark 43 consists of halftone dots of a 16-pixel pitch, and one dot is 2x2 pixels. In the 2nd example, in the 1st example of the above, the copy prohibition mark 43 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 43 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 43 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 43 is in a manuscript image, or there is nothing, and when the copy prohibition mark 43 is in a manuscript image, it outputs the mark detection signal  $H=1$ .

[0041] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 43, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 43 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 43, it generates the copy prohibition mark detection signal  $H=1$ .

[0042] At this 2nd example, since the copy prohibition mark 43 consists of halftone dots, in the mark detection section 24, the copy prohibition mark 43 can be detected by being characterized by the number of the pitch of the dot of that the copy prohibition mark 43 is a halftone dot and the copy prohibition mark 43, and the halftone dots in 1 area etc., and the merit that detection of a copy prohibition mark becomes easy is.

[0043] Drawing 12 shows the configuration of the copy prohibition mark in the 3rd example of this invention.

[0044] This copy prohibition mark 44 constitutes the interior of 2 of special images, for example, a figure, such as a figure, a notation, and an alphabetic character, as a halftone dot. In the 3rd example, in the 1st example of the above, the copy prohibition mark 44 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 44 are stored in the

pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 44 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 44 is in a manuscript image, or there is nothing, and when the copy prohibition mark 44 is in a manuscript image, it outputs the mark detection signal H= 1.

[0045] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 44, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The judgment section 29 judges the existence of the copy prohibition mark 44 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 44, it generates the copy prohibition mark detection signal H= 1.

[0046] Since the copy prohibition mark 44 constitutes the interior of a figure from this 3rd example as a halftone dot, in the mark detection section 24 Besides the copy prohibition mark 44 being a halftone dot, the copy prohibition mark 44 is [ that the configuration as the copy prohibition mark 44 whole is a specific figure ] detectable as one of the descriptions. There is a merit that the error which detection of a copy prohibition mark becomes easy, and incorrect-detects the halftone dot image on a manuscript image with a copy prohibition mark can be prevented.

[0047] Drawing 13 shows the configuration of the copy prohibition mark in the 4th example of this invention.

[0048] This copy prohibition mark 45 is constituted by the field 451 of the yellow divided by the concentric circle, the blue field 452, and the red field 453, and the combination of a color is one of the descriptions. The 4th example is constituted by the color copying machine, and in the 1st example of the above, while a read station 16 scans the manuscript on the manuscript base 11, what separates the color into three colors, reads and outputs the color picture data of three colors one by one is used. Moreover, the image-processing section 17 processes the color picture data of three colors from a read station 16 one by one, and the laser beam printer which the write-in section 18 forms each toner image on a photo conductor by the image data of three colors from the image-processing section 17, piles these up, and is imprinted to a transfer paper is used.

[0049] Moreover, in the 4th example, the copy prohibition mark 45 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 45 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 45 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 45 is in a manuscript image, or there is nothing, and when the copy prohibition mark 45 is in a manuscript image, it outputs the mark detection signal H= 1.

[0050] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 45, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 45 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 45, it generates the copy prohibition mark detection signal H= 1.

[0051] Although it is effective at especially a color copying machine since the copy prohibition mark 45 consists of this 4th example in two or more fields in which colors differ mutually, it is effective also at monochrome copying machine. In the mark detection section 24, the combination of the color can be detected for the copy prohibition mark 45 as one of the descriptions, detection of a copy prohibition mark becomes easy, and the merit that detection precision can be raised is obtained.

[0052] Drawing 14 shows the configuration of the copy prohibition mark in the 5th example of this invention.

[0053] This copy prohibition mark 46 is constituted by the field 461 where the concentration divided by the concentric circle is deep, the field 462 where concentration is thin, and the field 463 whose concentration is middle, and the combination of concentration is one of the descriptions. In the 5th example, in the 1st example of the above, the copy prohibition mark 46 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 46 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 46 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 46 is in a manuscript image, or there is nothing, and when the copy prohibition mark 46 is in a manuscript image, it outputs the mark detection signal H= 1.

[0054] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 46, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 46 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 46, it generates the copy prohibition mark detection signal H= 1.

[0055] In this 5th example, since the copy prohibition mark 46 consists of two or more fields in which concentration differs mutually, in the mark detection section 24, the combination of that concentration can be detected for the copy prohibition mark 46 as one of the descriptions, detection of a copy prohibition mark becomes easy, and the merit that detection precision can be raised is obtained.

[0056] Drawing 15 shows the configuration of the copy prohibition mark in the 6th example of this invention.

[0057] This copy prohibition mark 47 is constituted by two or more fields 471 where the consistencies of the halftone dot divided by the concentric circle differ mutually, for example, the field which has the halftone dot of 100 lines / inch, and the field 472 which has the halftone dot of 75 lines / inch. In the 6th example, in the 1st example of the above, the copy prohibition mark 47 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 47 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 47 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 47 is in a manuscript image, or there is nothing, and when the copy prohibition mark 47 is in a manuscript image, it outputs the mark detection signal H= 1.

[0058] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 47, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 47 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 47, it generates the copy prohibition mark detection signal H= 1.

[0059] Although the halftone dot image of various consistencies may exist in a common manuscript, there are very few images with which two or more halftone dots from which a consistency differs in fixed area live together, and the merit that the error which incorrectly detects the halftone dot in a common manuscript image with a copy prohibition mark can be prevented is obtained in the 6th example.

[0060] Drawing 16 shows the configuration of the copy prohibition mark in the 7th example of this invention.

[0061] This copy prohibition mark 48 is constituted by two or more lines 481 by which line breadth differs mutually, for example, a thin line, the line 482 which has middle width of face, and the thick line 483. In the 7th example, in the 1st example of the above, the copy prohibition mark 48 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 48 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 48 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 48 is in a manuscript image, or there is nothing, and when the copy prohibition mark 48 is in a manuscript image, it outputs the mark detection signal H= 1.

[0062] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 48, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 48 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 48, it generates the copy prohibition mark detection signal H= 1.

[0063] Since the copy prohibition mark 48 is constituted from this 7th example by two or more lines by which line breadth differs, the combination of that line breadth can be detected for a copy prohibition mark as one of the descriptions, and the detection precision of a copy prohibition mark can be raised.

[0064] Drawing 17 shows the configuration of the copy prohibition mark in the 8th example of this invention.

[0065] This copy prohibition mark consists of copy prohibition marks 49 and 50 which are two kinds from which the property of an image differs, and on the same copying paper 51, these copy prohibition marks 49 and 50 are arranged discretely, respectively, and are recorded. In the 8th example, in the 1st example of the above, the copy prohibition marks 49 and 50 are used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition marks 49 and 50 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition marks 49 and 50 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition marks 49 and 50 are in a manuscript image, or there is nothing, and when the copy prohibition marks 49 and 50 are in a manuscript image, it outputs the mark detection signal H= 1.

[0066] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition marks 49 and 50, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition marks 49 and 50 synthetically based on the collating result M from the collating section 28, and when there are copy prohibition marks 49 and 50, it generates the copy prohibition mark detection signal H= 1.

[0067] In this 8th example, besides the description that the copy prohibition marks 49 and 50 are two or more kinds of copy prohibition marks Since a copy prohibition mark is detected based on the description that the a large number array of two or more kinds of copy prohibition marks 49 and 50 from which the property of an image differs is carried out, respectively When the image with which 10,000 was similar to either of the copy prohibition marks 49 and 50 in the image of a common manuscript also 1 exists, and the manuscript is not added to the copy prohibition mark, the merit that the error which carries out a misjudgment law to a copy prohibition manuscript

can be prevented is obtained.

[0068] Drawing 18 shows the internal configuration of the image-processing section in the 9th example of this invention. This 9th example is the so-called 2 color copying machine which performs reading of black and two red colors and writing, and in the 1st example of the above, while a read station 16 scans the manuscript on the manuscript base 11, what separates the color with a green filter and a red filter, reads, and outputs image data A1 and A2 is used. In the image-processing section 17, as shown in drawing 18, in the filter sections 52 and 53, MTF amendment is carried out and the image data A1 and A2 from a read station 16 turns into image data E1 and E2, respectively. It is the image data obtained because image data A1 reads a manuscript through a green filter here, and image data A2 is image data obtained by reading a manuscript through a red filter.

[0069] the processing which the variable power section 54 expands the image data E1 from the filter section 52 to a main scanning direction, or is reduced -- being logical (or electronic) -- it carries out. Gamma conversion is carried out so that the concentration relation between a manuscript and a playback image may turn into desired relation in the gradation processing section 55, and as image data F by which variable power was carried out in the variable power section 54 becomes the image data which suits the write-in section 18 further, gradation processing is carried out and it is set to image data G. The video control section 56 controls image data G from the gradation processing section 55 by an input signal H etc., and outputs it to the write-in section 18 as image data B1. that is, when a copy prohibition mark is detected by the mark detection section 57 and the mark detection signal H is inputted from the mark detection section 57, the video control section 56 cuts image data G, sets to image data B1=0, and it makes a playback image white (nothing is recorded) -- it is made like.

[0070] The red extract section 58 analyzes the component of the image data E1 and E2 from the filter sections 52 and 53, and extracts only the red component in a manuscript image. The mark detection section 57 detects a copy prohibition mark paying attention to the description beforehand defined about the output signal R of the red extract section 58, the configuration of a copy prohibition mark, etc., and when a copy prohibition mark is in a manuscript image, it outputs the mark detection signal H= 1. The mark generating section 59 performs the same actuation as the above-mentioned mark generating section 25, and sends out mark picture signal B-2 to the write-in section 18 instead of the video control section 56.

[0071] The write-in section 18 records a red copy prohibition mark in the same paper for a copy by mark picture signal B-2 from the mark generating section 59 at the same time what has a 2 color write-in function is used and it records a manuscript image in the paper for a copy as a playback image black by the image data B1 from the video control section 56. After all, a manuscript image will be black recorded in the paper for a copy of one sheet, and a copy prohibition mark will be recorded in red. In this 9th example, since the copy prohibition mark was limited to red, there is a merit that the detection precision of a copy prohibition mark improves.

[0072] Drawing 19 shows the configuration of the copy prohibition mark in the 10th example of this invention. This copy prohibition mark 60 is a mark which surrounded the alphabetic character of "\*\*\*\*" with a circle, and is an image currently used with the stamp etc. as a notation meaning a "secret" in Japan. [ many ] In this 10th example, in the 1st example of the above, the copy prohibition mark 60 is used instead of the copy prohibition mark 41, the mark pattern data of the copy prohibition mark 60 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 60 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 60 is in a manuscript image, or there is nothing, and when the copy prohibition mark 60 is in a manuscript image, it outputs the mark detection signal H= 1. This mark detection section 24 can be constituted using a well-known OCR (Optical Character Recognition) technique. It is also possible to give the role of a copy prohibition mark by stamp sealing used conventionally in this 10th example. [ many ]

[0073] In addition, the copy prohibition mark 60 surrounds the alphabetic character of "\*\*\*\*" with a circle, and you may make it constitute the Marunouchi section from a halftone dot in the 10th example. In this case, the candidate for detection of the mark detection section 24 is a halftone

dot, and the semantics of the alphabetic character of "\*" itself is not related to detection of the mark detection section 24. The alphabetic character of "\*" has the role which gives the semantics of a "confidential document" to human being. Moreover, the copy prohibition mark 60 may consist of two or more kinds of lines by which line breadth differs. Furthermore, you may make it use what constituted the copy prohibition mark 60 from red as a copy prohibition mark in the 9th example.

[0074] Drawing 20 shows the configuration of the copy prohibition mark in the 11th example of this invention.

[0075] This copy prohibition mark 61 constitutes one dot from 1-4 pixels, distributes, arranges the dot C of cyanogen, the dot M of a Magenta, and the yellow dot Y, and is expressed by the array and color of this dot. [ two or more ] In the 11th example, in the color copying machine of the 4th example of the above, the copy prohibition mark 61 is used instead of the copy prohibition mark 45, the mark pattern data of the copy prohibition mark 61 are stored in the pattern generator 32, and the mark generating section 25 generates the signal of the copy prohibition mark 61 as a signal J of a special image. The mark detection section 24 judges whether image data E is analyzed and the copy prohibition mark 61 is in a manuscript image, or there is nothing, and when the copy prohibition mark 61 is in a manuscript image, it outputs the mark detection signal H= 1.

[0076] In the mark detection section 24, the description generating section 26 generates the description data L of the copy prohibition mark 61, and the feature-extraction section 27 extracts the description corresponding to the description data L generated in the description generating section 26 based on image data E, and it outputs the result as extract data K. The collating section 28 carries out comparison collating of the extract data K from the feature-extraction section 27, and the description data L from the description generating section 26, and outputs the collating result M. The judgment section 29 judges the existence of the copy prohibition mark 61 synthetically based on the collating result M from the collating section 28, and when there is a copy prohibition mark 61, it generates the copy prohibition mark detection signal H= 1.

[0077] In this 11th example, the merit of being unable to recognize easily with the naked eye, therefore not spoiling the conspicuousness of a manuscript image and the ease of reading when the copy prohibition mark 61 distributed and constituted two or more minute dots is obtained. The merit that there are many rates that an illustrated manuscript is used rather than a document manuscript in a color copying machine as compared with monochrome copying machine, the semantics of the picture itself may be lost the conspicuousness of a manuscript is not only spoiled, but, and generally distributing a minute dot, constituting a copy prohibition mark, and enciphering it will cancel the fault if a copy prohibition mark is conspicuous too much with an illustrated manuscript is obtained.

[0078] Drawing 21 shows what recorded the copy prohibition mark in the paper for a copy in other examples of this invention. the main scanning direction from two edges, the upper left where, as for this example, the specific location 42 on a copying paper 42, for example, a copying paper, counters the copy prohibition marks 41, 43-48, and 60 and 61 in each above-mentioned example, and the lower right, and fortune -- a scanning direction -- l1 and l -- it is arranged in the location distant [ every / 2 ]. Since a copy prohibition mark is detected for l1 and l2 as one of the descriptions, the detection precision of a copy prohibition mark can be raised in this example. in addition, the main scanning direction from two edges, the upper left where, as for the copy prohibition marks 41, 43-48, and 60 and 61, a copying paper 42 counters, and the lower right, and fortune -- a scanning direction -- l1 and l -- although arranged in the location distant [ every / 2 ], this is because a copy prohibition mark can be detected easily, even if the sense of a manuscript becomes reverse, when setting a manuscript on the manuscript base 11.

[0079]

[Effect of the Invention] The specific mark generating means for reproducing the image which added the specific mark to the manuscript image as mentioned above according to invention according to claim 1, Since it had a mark existence detection means to detect the existence of the specific mark in the read manuscript image, and the control means which changes copy

actuation with usual when this mark existence detection means detects the specific mark in a manuscript image The manuscript which added the specific pattern can be drawn up easily.

[0080] The specific mark generating means for reproducing the image which added the specific mark to the manuscript image according to invention according to claim 2, A mark existence detection means to detect the existence of the specific mark in the read manuscript image, Since it had the video control means which reads when this mark existence detection means detects the specific mark in a manuscript image, and makes image data an invalid, the manuscript which added the specific pattern can be drawn up easily.

[0081] Since it had a setting means to have set to a copying machine according to claim 1 or 2, and to make the mark generating function of said mark generating means turn on / turn off according to invention according to claim 3, a specific pattern can be alternatively added to a manuscript image, and it can reproduce.

[0082] Since according to invention according to claim 4 it had ON / an off means to make the function of a control means to change copy actuation with usual turn on / turn off, in the copying machine according to claim 1 when said mark existence detection means detected the specific mark in a manuscript image, it becomes possible to copy specially the manuscript which has a specific mark.

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[Translation done.]

**\* NOTICES \***

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

**[Brief Description of the Drawings]**

[Drawing 1] It is the block diagram showing the image-processing section of the 1st example of this invention.

[Drawing 2] It is the perspective view showing the appearance of this 1st example.

[Drawing 3] It is the block diagram showing the image data flow from manuscript reading in this 1st example to playback image recording, and the flow of the control signal of image data.

[Drawing 4] It is the block diagram showing the internal configuration of the mark detection section in this image-processing section.

[Drawing 5] It is the block diagram showing the internal configuration of the mark generating section in this image-processing section.

[Drawing 6] It is the block diagram showing the important section of the video control section in this image-processing section.

[Drawing 7] It is drawing showing the copy prohibition mark of this 1st example.

[Drawing 8] It is the mimetic diagram in which developing two-dimensional and showing the situation of the image data at the time of reading a copy prohibition mark in expansion copy mode in this 1st example.

[Drawing 9] It is the mimetic diagram in which developing two-dimensional and showing the situation of the image data at the time of reading a copy prohibition mark in contraction copy mode in this 1st example.

[Drawing 10] It is a \*\* Fig. about the example which recorded the copy prohibition mark in the



paper for a copy in this 1st example.

[Drawing 11] It is drawing showing the configuration of the copy prohibition mark in the 2nd example of this invention.

[Drawing 12] It is drawing showing the configuration of the copy prohibition mark in the 3rd example of this invention.

[Drawing 13] It is drawing showing the configuration of the copy prohibition mark in the 4th example of this invention.

[Drawing 14] It is drawing showing the configuration of the copy prohibition mark in the 5th example of this invention.

[Drawing 15] It is drawing showing the configuration of the copy prohibition mark in the 6th example of this invention.

[Drawing 16] It is drawing showing the configuration of the copy prohibition mark in the 7th example of this invention.

[Drawing 17] It is drawing showing the configuration of the copy prohibition mark in the 8th example of this invention.

[Drawing 18] It is drawing showing the internal configuration of the image-processing section in the 9th example of this invention.

[Drawing 19] It is drawing showing the configuration of the copy prohibition mark in the 10th example of this invention.

[Drawing 20] Drawing 20 is drawing showing the configuration of the copy prohibition mark in the 11th example of this invention.

[Drawing 21] It is drawing showing what recorded the copy prohibition mark in the paper for a copy in other examples of this invention.

[Description of Notations]

16 Read Station

17 Image-Processing Section

18 Write-in Section

23 Video Control Section

24 Mark Detection Section

25 Mark Generating Section

[Translation done.]

#### \* NOTICES \*

JPO and NCIP are not responsible for any damages caused by the use of this translation.

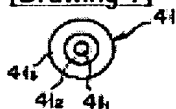
1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\* shows the word which can not be translated.

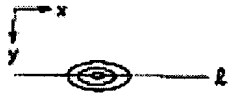
3.In the drawings, any words are not translated.

#### DRAWINGS

[Drawing 7]



[Drawing 9]



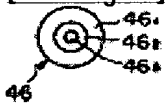
[Drawing 12]



[Drawing 13]



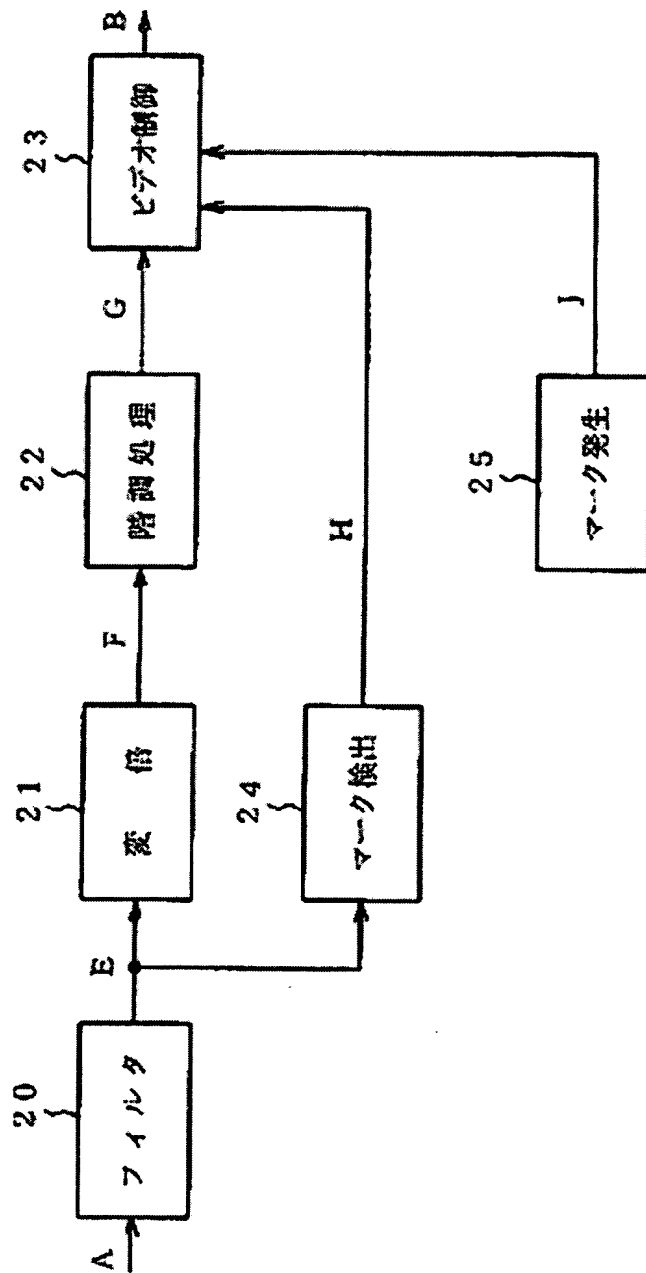
[Drawing 14]



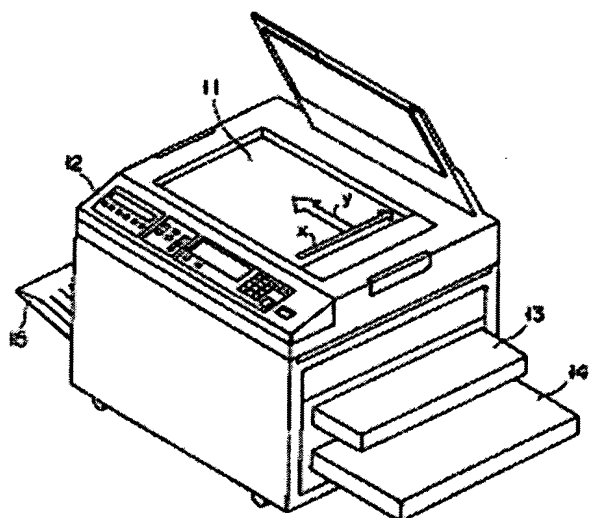
[Drawing 15]



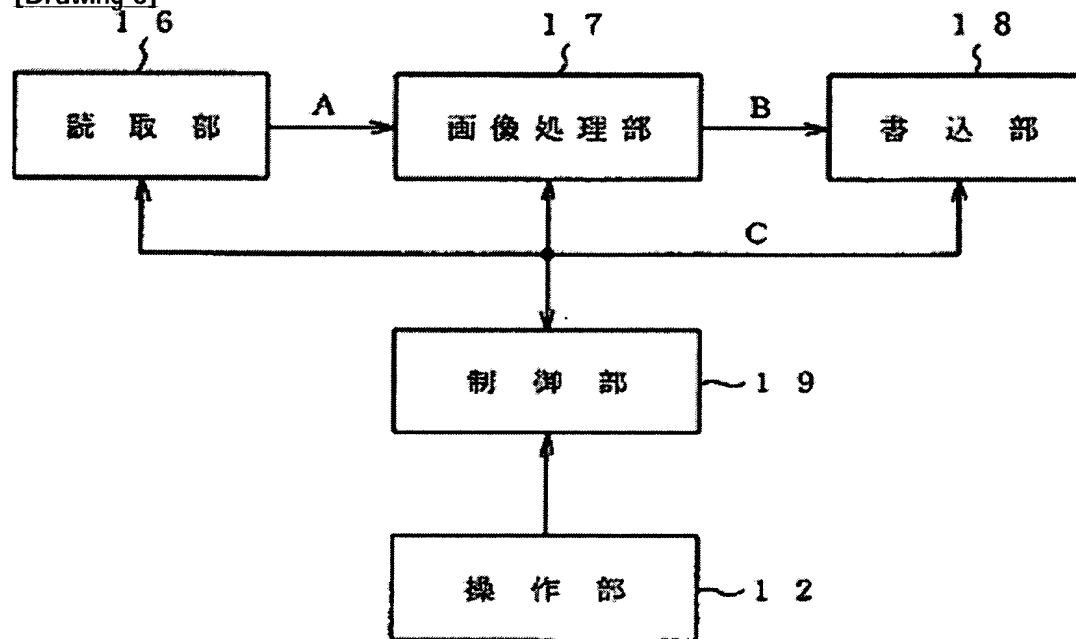
[Drawing 1]



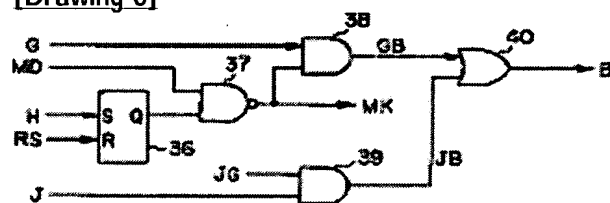
[Drawing 2]



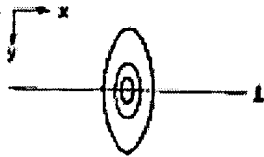
[Drawing 3]



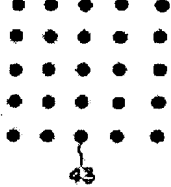
[Drawing 6]



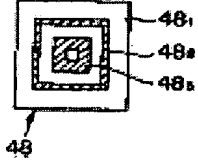
[Drawing 8]



[Drawing 11]



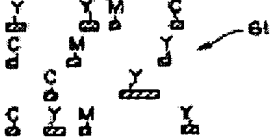
[Drawing 16]



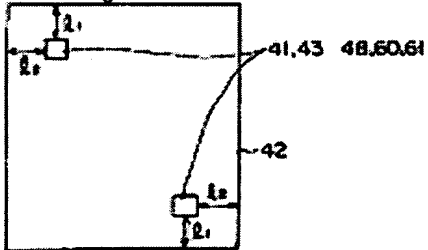
[Drawing 19]



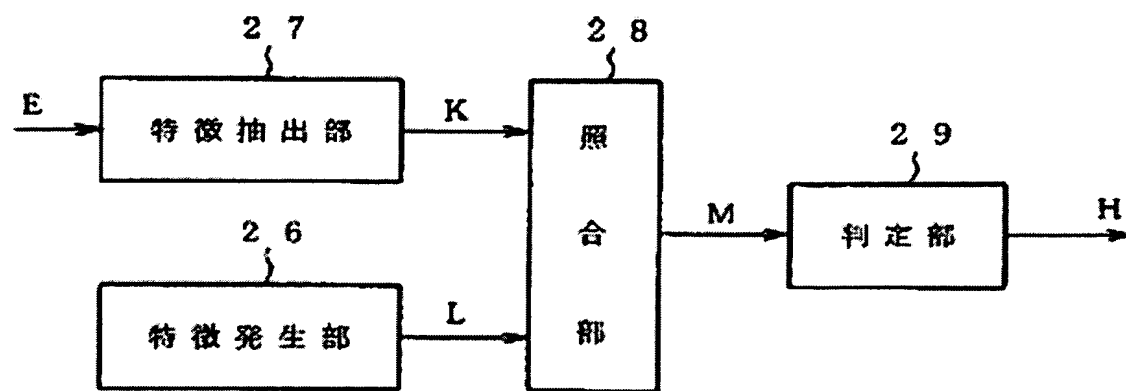
[Drawing 20]



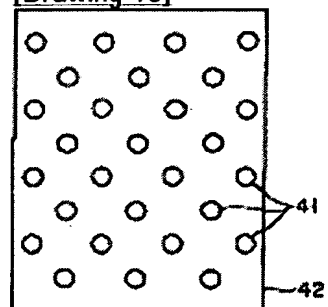
[Drawing 21]



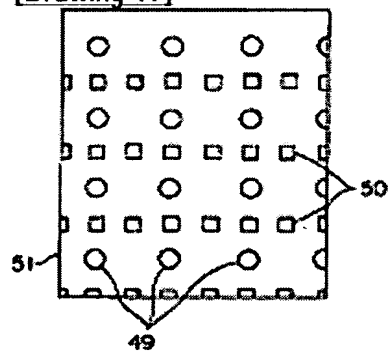
[Drawing 4]



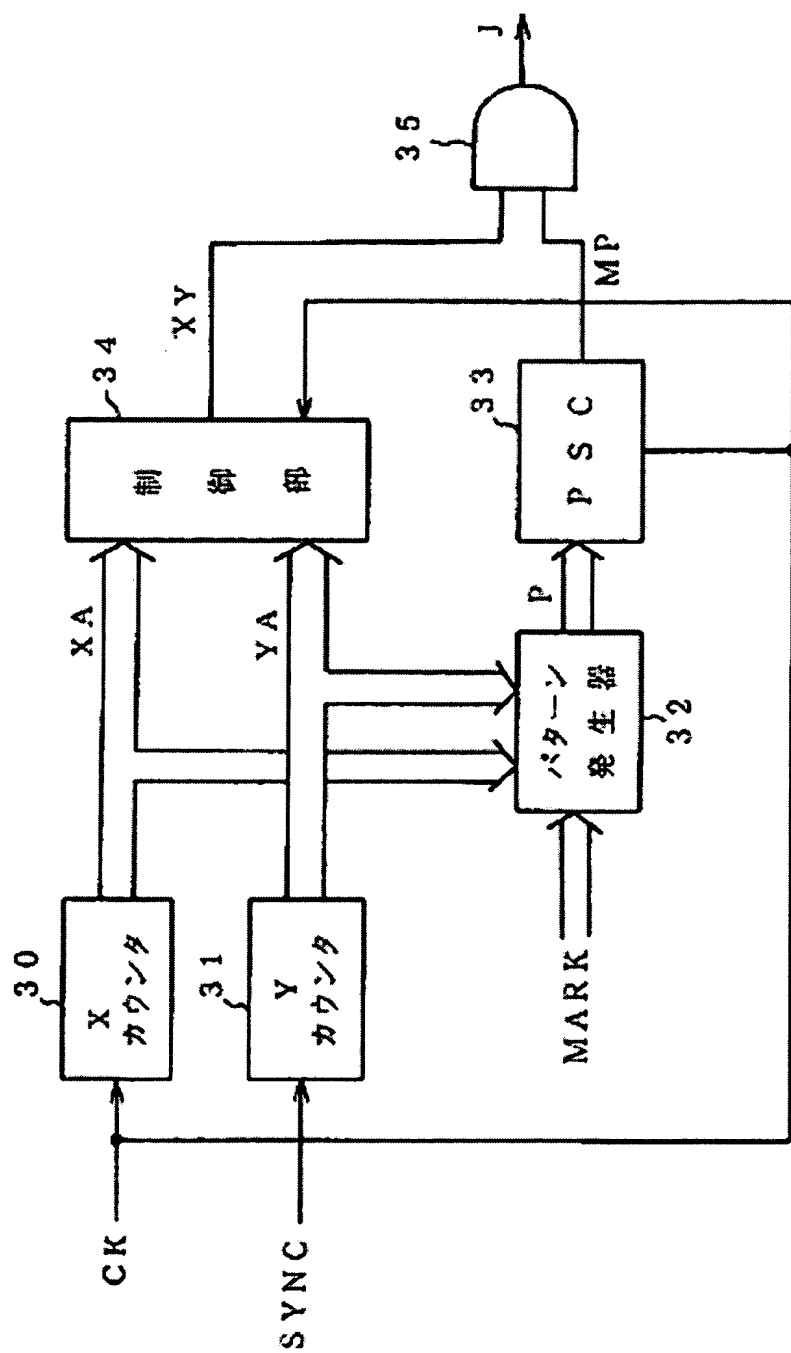
[Drawing 10]



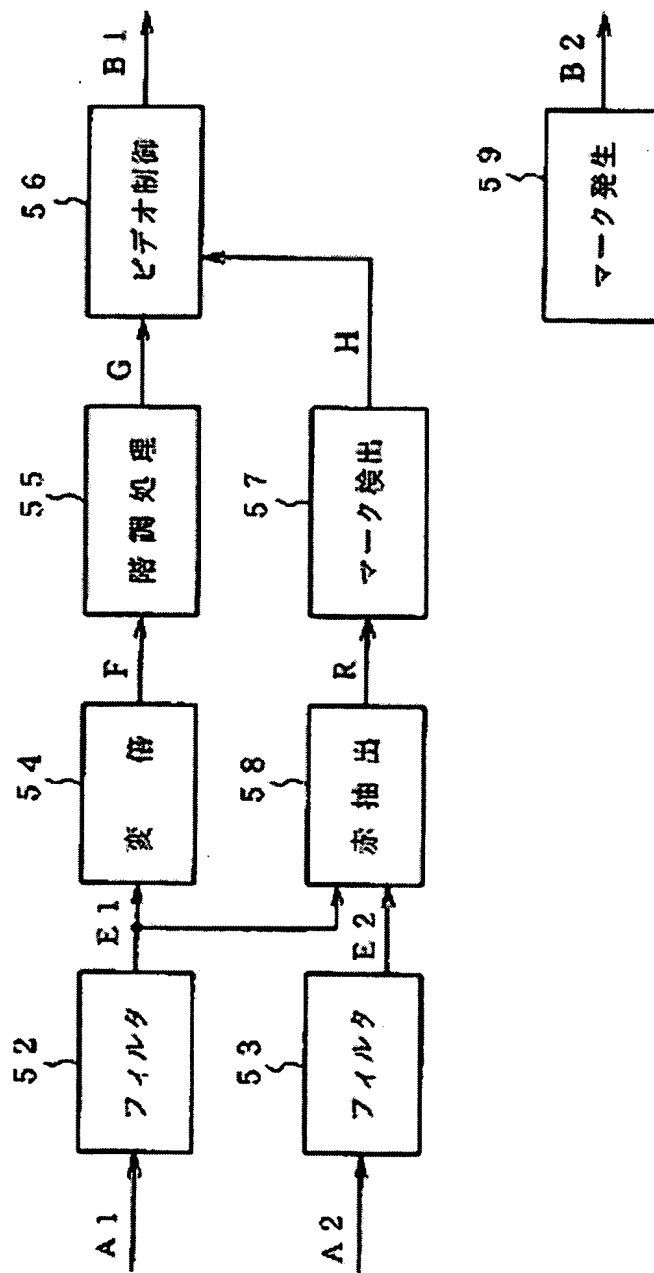
[Drawing 17]



[Drawing 5]



[Drawing 18]



[Translation done.]